

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 8352
Order No. R-7737

APPLICATION OF CITIES SERVICE
OIL & GAS CORPORATION FOR TEMPORARY
SPECIAL SPACING RULES IN THE WEST
BRAVO DOME CARBON DIOXIDE GAS AREA,
HARDING COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9:00 a.m. on September 26, 1984, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission".

NOW, on this 19th day of November, 1984, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, and being fully advised in the premises,

FINDS THAT:

(1) Due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) Applicant, Cities Service Oil & Gas Corporation, hereinafter referred to as "Cities Service", a substantial operator in the area, seeks the promulgation of temporary spacing rules for the West Bravo Dome Carbon Dioxide Gas Area and for a distance of one mile outside the Area, including a provision for 640-acre spacing and proration units and specified well locations.

(3) The West Bravo Dome Carbon Dioxide Gas Area which Cities Service proposes to space on 640-acre spacing is described on Exhibit "A" attached hereto.

(4) Cities Service is forming the West Bravo Dome Carbon Dioxide Gas Unit for production of carbon dioxide in a portion of the West Bravo Dome Carbon Dioxide Gas Area.

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. 4
Submitted by: OXY
Hearing Date: June 4, 2013

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(5) Of the lands described in said Exhibit "A" which Cities Service seeks to have spaced on 640 acres, the Amoco operated Bravo Dome Carbon Dioxide Gas Unit Area comprises the following lands:

TOWNSHIP 18 NORTH, RANGE 30 EAST, NMPM

Sections 1 and 2: All
Section 3: E/2 E/2 and SW/4 SE/4
Section 10: E/2 NE/4
Section 11: N/2
Sections 12 through 14: All
Section 23: E/2 and E/2 W/2
Section 24: All
Section 25: E/2, E/2 W/2, W/2 NW/4, and NW/4 SW/4
Section 26: NE/4, E/2 NW/4, and N/2 S/2
Section 36: All

TOWNSHIP 18 NORTH, RANGE 31 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 19 NORTH, RANGE 29 EAST, NMPM

Section 1: NE/4 and E/2 NW/4

TOWNSHIP 19 NORTH, RANGE 30 EAST, NMPM

Section 20: W/2 NE/4 and S/2 SE/4
Sections 21 through 28: All
Section 29: NE/4
Section 32: NE/4 NE/4
Section 33: NW/4, W/2 NE/4, NE/4 NE/4,
NW/4 SE/4 and NE/4 SW/4
Section 34: N/2 and E/2 SE/4
Sections 35 and 36: All

TOWNSHIP 19 NORTH, RANGE 31 EAST, NMPM

Sections 19 through 36: All

(6) The lands described in Finding No. (4) above were, among other lands, the subject of Case No. 8190, wherein Amoco Production Company sought 640-acre spacing for its Bravo Dome Carbon Dioxide Gas Unit Area, which case was heard by the Commission on May 15, 1984, and from which on June 19, 1984, issued Commission Order No. R-7556; and that said Order No. R-7556 approved 640-acre well spacing for a portion of the unit area, but denied 640-acre spacing for the remainder of the area and established 160-acre spacing as the proper spacing for said remainder of the area.

(7) The lands described in Finding No. (5) above are lands contained within the area currently requested by Cities Service for 640-acre spacing, but are lands which were

considered for 640-acre spacing in Case No. 8190 for which 640-acre spacing was denied; and that said lands are lands contained in the "Bravo Dome 160-Acre Area" designated by Commission Order No. R-7556.

(8) In support of its application for 640-acre spacing in the West Bravo Dome Carbon Dioxide Gas Area, Cities Service offered substantial new evidence concerning geological and engineering data relating to the quantity and quality of the pay, long-term flow tests, flow test simulations, and well economics.

(9) Cities Service's long term flow tests, isochronal tests and the simulations constituted evidence that was not available prior to June 1, 1984.

(10) Cities Service's evidence established that the Tubb formation constitutes a common source of supply in the West Bravo Dome Carbon Dioxide Gas Area and that it most likely constitutes a common source of supply including that area designated the Bravo Dome 640-acre Area defined by said Order No. R-7556.

(11) Cities Service's evidence established that the Tubb formation has good geological continuity within the entire West Bravo Dome Carbon Dioxide Gas Area.

(12) With the exception of the thickness of the net pay, the carbon dioxide reservoir in the West Bravo Dome Carbon Dioxide Gas Area has reservoir parameters and quality similar to those in the Bravo Dome 640-Acre Area established and defined in said Order No. R-7556.

(13) Said Order No. R-7556 established 640-acre spacing units in said Bravo Dome 640-Acre Area and further established special rules therefore.

(14) The difference in the thickness of the net pay between the Bravo Dome Carbon 640-Acre Area and the West Bravo Dome Carbon Dioxide Gas Area is not an adequate basis upon which to space wells differently in each area.

(15) In addition to continuity, the only reservoir parameter that affects the ability of a well to drain and develop a given number of acres is the permeability.

(16) The range of permeabilities in the Bravo Dome Carbon 640-Acre Area and the West Bravo Dome Carbon Dioxide Gas Area are comparable.

(17) The average permeability in the West Bravo Dome Carbon Dioxide Gas Area is 10 millidarcies which is adequate for a well to have the capacity to drain 640 acres.

(18) The only opposition to the approval of 640-acre spacing for a temporary period within the West Bravo Dome Carbon Dioxide Gas Area was from AmeriGas Carbon Dioxide Division of UGI hereinafter referred to as "AmeriGas."

(19) AmeriGas is the owner of substantial acreage interests in the West Bravo Dome Carbon Dioxide Gas Area.

(20) AmeriGas has owned and operated carbon dioxide wells on its leases in conformance to the Commission's 160-acre gas well spacing rules for many years, and has built and operated, and continues to operate, carbon dioxide processing plants in the area for the manufacture of liquid and solid carbon dioxide products.

(21) Of the fourteen wells currently operated by AmeriGas, six are located on sections with no other well.

(22) At the time of the hearing AmeriGas presented no plans for the additional development of any of its acreage.

(23) At the hearing, AmeriGas did not demonstrate that the adoption of 640-acre spacing as to any of its undeveloped acreage would violate its correlative rights or cause waste.

(24) At this time, to amend the 160-acre spacing pattern upon which AmeriGas's currently operating wells were drilled and spaced could unnecessarily upset long established equities.

(25) Acreage upon which AmeriGas current wells are operating should not be placed in a 640-acre spaced area but should continue to remain in the Bravo Dome 160-Acre Area.

(26) To accomplish the intent of Finding No. (25) above, the following described acreage should be excluded from consideration for 640-acre spacing in this case:

TOWNSHIP 18 SOUTH, RANGE 30 EAST, NMPM
Sections 4 and 5: All
Sections 8 and 9: All

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 13: All

TOWNSHIP 19 SOUTH, RANGE 30 EAST, NMPM
Sections 19 and 20: All

Section 29: All
Section 33: All

(27) The currently available information indicates that one well in the West Bravo Dome Carbon Dioxide Gas Area as amended in Finding No. (26) above, should be able to effectively and efficiently drain 640 acres.

(28) In order to prevent the economic loss caused by the drilling of unnecessary wells, to prevent the reduced recovery of carbon dioxide which might result from the drilling of too many wells, and to otherwise prevent waste and protect correlative rights, the West Bravo Dome Carbon Dioxide Gas Area, as described on Exhibit "B" should be created with temporary Special Rules providing for 640-acre spacing.

(29) The Bravo Dome 160-Acre Area as previously defined and described in said Order No. R-7556 should be contracted by the deletion therefrom of the area described on Exhibit "C" attached to this order.

(30) The vertical limits of the West Bravo Dome Carbon Dioxide Gas Area should be defined as the Tubb formation between the depths above sea level of 2563 feet and 2417 feet as found on the Compensated Neutron-Formation Density log of the Cities Service DC No. 1 Well, located in Unit F of Section 36, Township 19 North, Range 29 East, NMPM, Harding County, New Mexico.

(31) The testimony in this case demonstrates that the West Bravo Dome Carbon Dioxide Area and the Bravo Dome 640-Acre Area are parts of a common reservoir and they should be governed by common special rules.

(32) The Temporary Special Rules and Regulations consistent with the Bravo Dome 640-Acre Area special rules should be established for a period not to exceed three years in order to allow the operators in the West Bravo Dome Carbon Dioxide Gas Area to gather reservoir information to establish whether the temporary rules should be made permanent.

(33) This case should be reopened at a hearing in June, 1987, at which time Cities Service and other interested parties should appear and show cause why the West Bravo Dome Carbon Dioxide Gas Area should not be developed on less than 640-acre spacing and proration units.

IT IS THEREFORE ORDERED THAT:

(1) The Application of Cities Service for the promulgation of temporary special spacing rules for the West Bravo Dome Carbon Dioxide Area to provide for 640-acre spacing and specified well locations is hereby granted.

(2) The Bravo Dome 160-acre Area as defined and described in Order No. R-7556 is hereby contracted by deletion therefrom of the acreage described on Exhibit "C" attached to this order.

(3) The said West Bravo Dome Carbon Dioxide Gas Area is hereby established comprising those lands defined in Exhibit "B" attached hereto and made a part hereof.

(4) The vertical limits of the West Bravo Dome Carbon Dioxide Gas Area shall be the Tubb formation (from the base of the Cimarron Anhydrite to the top of the Granite) as defined in Finding (30) of this order.

(5) The 640-acre spacing and proration units and limited well locations, being no closer than 1,650 feet to the outer boundary of the unit and no closer than 330 feet to any governmental quarter-quarter section line, are hereby established for the West Bravo Dome Carbon Dioxide Gas Area for a period not to exceed three years from date of entry of this Order.

(6) Effective December 1, 1984, special rules and regulations for the West Bravo Dome Carbon Dioxide Gas Area in Harding County, New Mexico, as more fully described in Exhibit "B" attached to this Order and made a part hereof, are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
WEST BRAVO DOME CARBON DIOXIDE GAS AREA

RULE 1. Each well completed or recompleted in the West Bravo Dome Carbon Dioxide Gas Area shall be spaced, drilled, and operated in accordance with the Special Rules and Regulations hereinafter set forth, that these rules shall be applicable to the Tubb formation outside the West Bravo Dome Carbon Dioxide Gas Area but not within the Bravo Dome 160-Acre Area and not within that area described in Finding No. 26 of this order.

RULE 2. Each well shall be located on a standard unit containing 640 acres, more or less, consisting of a governmental section; provided, however, that nothing contained herein shall be construed as prohibiting the drilling of a well on each of the quarter sections in the unit.

RULE 3. The Director of the Oil Conservation Division may grant an exception to the requirements of Rule 2 without notice and hearing when an application has been filed for a non-standard unit and the unorthodox size or shape of the unit is necessitated by a variation in the legal subdivision of the United States Public Land Surveys, or the following facts exist and the following provisions are complied with:

- (a) The non-standard unit consists of quarter-quarter section or lots that are contiguous by a common bordering side.
- (b) The non-standard unit lies wholly within a governmental section and contains less acreage than a standard unit.
- (c) The applicant presents written consent in the form of waivers from all offset operators and from all operators owning lands in the section in which the non-standard unit is situated which lands are not included in said non-standard unit.
- (d) In lieu of Paragraph (c) of this rule, the applicant may furnish proof of the fact that all of the aforesaid operators were notified by registered or certified mail of his intent to form such non-standard unit. The Director may approve the application if no such operator has entered an objection to the formation of such non-standard unit within 30 days after the Director has received the applications.

RULE 4. Each well shall be located no nearer than 1,650 feet to the outer boundary of the section and no nearer than 330 feet to any governmental quarter-quarter section line; provided, however, that any subsequent wells drilled on a unit shall be located no nearer than 1,320 feet from any existing well drilling to or capable of producing from the West Bravo Dome Carbon Dioxide Gas Area, and provided, further, that in the case of a 640-acre unit offset by a spacing and proration unit of 160 acres or less in an area spaced on 160 acres which has thereon a well completed in and capable of producing from the equivalent vertical limits of the West Bravo Dome Carbon Dioxide Gas Area, the 640-acre unit well may be located equidistant from the common line between the units as the well on the lesser sized unit.

RULE 5. The Director may grant an exception to the requirements of Rule 4 without notice and hearing when an

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application has been filed for an unorthodox location necessitated by topographical conditions. All operators offsetting the spacing and proration unit shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Director may approve the application upon receipt of written waivers from all operators offsetting the spacing and proration unit or if no objection to the unorthodox location has been entered within 20 days after the Director has received the application.

IT IS FURTHER ORDERED THAT:

(1) This case shall be reopened in June 1987, at which time the applicant herein or other interested parties may appear and show cause why the West Bravo Dome Carbon Dioxide Gas Area should not be developed on less than 640-acre spacing and proration units.

(2) The locations of all wells presently drilling to or completed in the West Bravo Dome Carbon Dioxide Gas Area are hereby approved; the operator of any well having an unorthodox location shall notify the Santa Fe District Office of the Division in writing of the name and location of the well on or before March 1, 1985.

(3) Pursuant to Paragraph A. of Section 70-2-18, NMSA 1978, contained in Chapter 271, Laws of 1969, existing wells in the West Bravo Dome Carbon Dioxide Gas Area shall have dedicated thereto 640 acres in accordance with the foregoing pool rules, or, pursuant to Paragraph C. of said Section 70-2-18, existing wells may have non-standard spacing or proration units established by the Division and dedicated thereto.

(4) Failure to file new Forms C-102 with the Division dedicating 640 acres to a well or to obtain a non-standard unit approved by the Division within 60 days from the date of this Order shall subject the well to being shut-in. Until said Form C-102 has been filed or until a non-standard unit has been approved, and subject to the 60-day limitation, each well presently drilling to or completed in the West Bravo Dome Carbon Dioxide Gas Area shall receive no approved Form C-104, provided, however, that no further approval shall be required for any non-standard spacing and proration unit comprising less than 160 acres or for any 160-acre unit consisting of other than a single governmental quarter section, provided such unit has previously been approved by order of the Division.

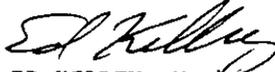
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(5) Jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

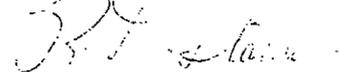
DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JIM BACA, Member



ED KELLEY, Member



R. L. STAMETS, Chairman
and Secretary

S E A L

HARDING COUNTY

TOWNSHIP 20 NORTH, RANGE 29 EAST, NMPM
Sections 31 through 33: All

TOWNSHIP 19 NORTH, RANGE 29 EAST, NMPM
Sections 1 through 36: All

TOWNSHIP 18 NORTH, RANGE 29 EAST, NMPM
Sections 1 through 36: All

TOWNSHIP 17 NORTH, RANGE 29 EAST, NMPM
Sections 1 through 12: All
Sections 14 through 22: All
Sections 23 through 30: All

* Sections 18, 19, 29, and 30 are partial sections.

TOWNSHIP 18 NORTH, RANGE 30 EAST, NMPM
Sections 1 through 36: All

TOWNSHIP 19 NORTH, RANGE 30 EAST, NMPM
Sections 19 through 36: All

TOWNSHIP 18 NORTH, RANGE 31 EAST, NMPM
Sections 1 through 36: All

TOWNSHIP 19 NORTH, RANGE 31 EAST, NMPM
Sections 19 through 36: All

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EXHIBIT "A"

HARDING COUNTY

TOWNSHIP 20 NORTH, RANGE 29 EAST, NMPM

Section 31 through 33: All

TOWNSHIP 19 NORTH, RANGE 29 EAST, NMPM

Sections 1 through 12: All

Sections 14 through 36: All

TOWNSHIP 18 NORTH, RANGE 29 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 17 NORTH, RANGE 29 EAST, NMPM

Sections 1 through 12: All

Sections 14 through 22: All

Sections 28 through 30: All

* Sections 18, 19, 29, and 30 are partial sections.

TOWNSHIP 18 NORTH, RANGE 30 EAST, NMPM

Sections 1 through 3: All

Sections 6 and 7: All

Sections 10 through 36: All

TOWNSHIP 19 NORTH, RANGE 30 EAST, NMPM

Sections 21 through 28: All

Sections 30 through 32: All

Sections 34 through 36: All

TOWNSHIP 18 NORTH, RANGE 31 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 19 NORTH, RANGE 31 EAST, NMPM

Sections 19 through 36: All

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EXHIBIT "B"

HARDING COUNTY

TOWNSHIP 18 NORTH, RANGE 30 EAST, NMPM

Sections 1 and 2: All
Section 3: E/2 E/2 and SW/4 SE/4
Section 10: E/2 NE/4
Section 11: N/2
Sections 12 through 14: All
Section 23: E/2 and E/2 W/2
Section 24: All
Section 25: E/2, E/2 W/2, W/2 NW/4 and NW/4 SW/4
Section 26: NE/4, E/2 NW/4 and N/2 S/2
Section 36: All

TOWNSHIP 18 NORTH, RANGE 31 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 19 NORTH, RANGE 29 EAST, NMPM

Section 1: NE/4 and E/2 NW/4

TOWNSHIP 19 NORTH, RANGE 30 EAST, NMPM

Section 20: W/2 NE/4 and S/2 SE/4
Sections 21 through 28: All
Section 29: NE/4
Section 32: NE/4 NE/4
Section 33: NW/4, W/2 NE/4, NE/4 NE/4,
NW/4 SE/4 and NE/4 SW/4
Section 34: N/2 and E/2 SE/4
Sections 35 and 36: All

TOWNSHIP 19 NORTH, RANGE 31 EAST, NMPM

Sections 19 through 36: All

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EXHIBIT "C"